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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/621,588 | 07/17/2003 | Jun-Ho Koh | 5000-1-350 | 2607 |

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| EXAMINER | |
|---|---|
| LE, THI Q | |
| ART UNIT | PAPER NUMBER |
| 2613 | |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/621,588 | KOH ET AL. | |
| | Examiner | Art Unit | |
| | Thi Q. Le | 2613 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-10 and 12* is/are rejected.

7)☐ Claim(s) *4,6 and 11* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. **Claim 1** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)**

Consider **claim 1**, Combs et al. clearly show and disclose; a broadcast/communication unified passive optical network system, comprising:

An optical line termination (read as, the head end unit 102; figure 1) configured to time-division multiplex received digital broadcast signals (read as, TDM the second downstream signal; column 4 lines 1-9), to receive communication signals from an electronic network (read as, receive data from modem signals and forming first downstream signal; column 3 lines 60-57), configured to wavelength-division multiplex the digital broadcast signals and the communication signals, and configured to transmit the wavelength-division multiplexed signals (note, communication between head end unit 102, Mux-node 104 and mFN 108 use WDM signals, column 5 lines 7-27. The head end unit 102 is capable of transmitting a first downstream signal and a second downstream signal, wherein the second downstream signal is a TDM signal while the first downstream signal is not TDM. It would have been obvious to a person of ordinary skill in the art, that the first and second downstream are combined and transfer using WDM signal. Thus, there must be an optical wavelength-division multiplexer for transmitting the combined first and second downstream signal in an WDM signal) (abstract: figure 1 and 2; column 3 lines 45-67; column 5 lines 1-9; column 5 lines 7-27);

a plurality of optical network units (read as, Mux-node 104; figure 1) coupled to the optical line termination (read as, optical fiber 114 connects Mux-node 104 and head-end unit 102; figure 1), each of said optical network units configured to wavelength-division demultiplex the wavelength-division multiplexed signals received from the optical line termination (read as, the Mux-node 104 is capable of wavelength-demultiplexing the received signal from head-end unit 102; figure 2) , configured to time-division demultiplex the time-division multiplexed digital

broadcast signals (read as, the Mux-node 104 is also capable of time-division demultiplexing the received signal from head-end unit 102; figure 8), and configured to output a subset of the time-division demultiplexed digital broadcast signals selected in accordance with a subscriber control signal and the communicating signals (read as, the processed signals are then sent to mFN 108 for distribution to different subscribers. Note, "subscriber may send MAC signals upstream for access privileges") (figures 1, 2 and 8; column 4 lines 10-42; column 5 lines 50-67; column 11 lines 24-53); and

a plurality of setup boxes (read as, combination mFN 108 end users 112; figure 1) coupled to each one of the plurality of optical network units (read as, Mux-node 104; figure 1), each of the plurality of setup boxes configured to receive the wavelength-division demultiplexed and time-division demultiplexed broadcast signals and wavelength-division demultiplexed communication signals from corresponding optical network unit, and configured to send subscriber control signals input by the subscriber to the corresponding optical network unit (read as, downstream signal received by the mFN 108 is distributed to end users 112; and upstream signals from end user 114 are transmitted by each mFN 108 to Mux-node 104) (figure 1; column 3 line 60 – column 4 line 42)

12. **Claims 2 and 3** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)** in view of **Goodman et al. (US Patent # 5,666,487)**.

Consider **claim 2, and as applied to claim 1 above**, Combs et al. disclose the invention as described above, except for wherein the received digital broadcast signals is an MPEG2 multi-program transport stream.

In related art, Goodman et al. disclose a network providing signals of different formats to a user. Video signals are compress according to MPEG format; to be more specific MPEG2, which are second generation compression standards (abstract; column 2 lines 8-25).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Goodman et al. into Combs et al. Since compressing video signal free up bandwidth; extra bandwidth can be use to transfer other data or more video signals. By using MPEG2 standards allow for better video compression.

Consider **claim 3 and applied to claim 1 above**, Combs et al. disclose the invention as described above, except for wherein the electronic network is the Internet.

In related art, Goodman et al. disclose a network providing signals of different formats to a user. The network can also transfer packet type signal, which were obtained from the internet and transfer to the end-user (abstract; figure 2; column 12 lines 8-18).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Goodman et al. into Combs et al. Since the cable modem disclose by Comb et al. need an internet to retrieve information; Goodman et al. disclose of such internet connectivity for which the cable modem can be connect to.

13. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)** in view of **Goodman et al. (US Patent # 5,666,487)** and further in view of **Ahmed et al (US Patent # 6,519,773)**.

Consider **claim 5, and as applied to claim 3 above**, Combs et al. as modified by Goodman et al. disclose the invention as described above, except for wherein the TDM format is

in accordance with a synchronous digital hierarchy/synchronous optical network (SDH/SONET) standard.

In related art, Ahmed et al. disclose an apparatus for digitized CATV network. Where SONET is use as the digital format, since it is the standard for optical telecommunication transport (column 8 lines 36-50).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Ahmed et al. into Combs et al. as modified by Goodman et al. Since as stated by Ahmed et al. the reason to use a standard SONET is it allows equipment from different suppliers to be used in a fiber system (column 8 lines 36-50).

4. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)**, in view of **Ahmed et al (US Patent # 6,519,773)**, and further in view of **Lehman et al. (US Patent # 4,763,317).**

Consider **claim 7 and as applied to claim 1 above,** Combs et al. disclose the invention as described above; except for, wherein each of the plurality of optical network unit comprises: a second wavelength-division multiplexer configured to wavelength-division demultiplex the signals received from the optical line termination; a second time-division multiplexer configured to time-division demultiplex the demultiplexed broadcast signals; a format converter configured to convert the broadcast signals having a time-division multiplexing format into a moving image format and to output the format-converted signals; a controller configured to transmit only the broadcast signals selected from the format-converted signals in accordance with a subscriber control signal to the setup boxes; and a distributor configured to output the subscriber control

signal to the controller and to transmit the demultiplexed communication signals to the setup boxes.

In related art, Ahmed et al. disclose an apparatus for digitized CATV network. Received signals are first demultiplexed by demultiplexer, 706, into separate channels. There are a plurality of deformatter 712 (read as, format converter) connected to each channels; the combined function of the demultiplexer, 706, and deformatter 712, is to demultiplex the received time-division multiplexed signals (abstract; figure 7; column 11 lines 47-67).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching of Ahmed et al. into Combs et al. Since formatting the broadcast signals and Time-division-multiplexing those signals allow addition channels to be easily added as necessary. If formatting has occurred before transmission, then there must be deformatting once the signals are received at the other end. It would easier for system maintenance to have the plurality of deformatters to be place at one location rather; thus putting the deformatter within the optical network unit rather than at each end-user unit, make system maintenance easier.

Combs et al. as modified by Ahmed et al. disclose the invention as described above; except for, wherein each of the plurality of optical network unit comprises: a second wavelength-division multiplexer configured to wavelength-division demultiplex the signals received from the optical line termination; a second time-division multiplexer configured to time-division demultiplex the demultiplexed broadcast signals; a format converter configured to convert the broadcast signals having a time-division multiplexing format into a moving image format and to output the format-converted signals; a controller configured to transmit only the broadcast

signals selected from the format-converted signals in accordance with a subscriber control signal to the setup boxes; and a distributor configured to output the subscriber control signal to the controller and to transmit the demultiplexed communication signals to the setup boxes.

In related art, Lehman et al. disclose a digital communication network. Wherein each remote node (read as, optical network unit) comprises a digital time-division multiplexer and demultiplexer; optical signals are transported between central node, remote nodes and end-user through wavelength division multiplexing (WDM). At the remote node, the feeder interface, 502, receives signals, WDM demultiplex and TDM demultiplex the signals; then convert the optical signals into electrical signals. End-user control signals are transmitted to the local central node; then the control signals are forward to the controller, 502, within the remote node. Controller, 502, switch the signals according to the receive control signal. Distributor, 505, receive the switched signal and transmit the signals to end-user; distributor, 505, can also receive upstream signal from the end-user (figure 9; column 18 lines 4-18 and column 19 lines 45-50).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Lehman et al. with Combs et al. as modified by Ahmed et al. Since TDM signal can be modified easier; modify as in adding and removing additional channels; WDM transmission makes efficient use of bandwidth. Control and distribution units are necessary to provide services quickly and correctly according to end-user control signals.

5. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)** in view of **Ahmed et al (US Patent # 6,519,773)**, further in view of **Lehman et al. (US Patent # 4,763,317)**, and further in view of **Vohra et al (US PGPub 2003/0152386 with provisional application date 12/04/2001)**.

Consider **claim 8 and as applied to claim 7 above**, Combs et al. as modified by Ahmed et al. disclose the invention described above; except for, wherein each of the optical network units further comprises: a first O/E converter configured to convert and output the digital broadcast signals among the demultiplexed optical signals provided from the second wavelength-division multiplexer; a second O/E converter configured to convert and output the communication signals among the demultiplexed optical signals provided from the second wavelength-division multiplexer; a third O/E converter from convert and output the communication signals inputted through the optical fiber; a first frequency converter configured to outputs the signal provided from the controller after converting the frequency thereof into a first intermediate frequency signal; a second frequency converter configured to output the signals inputted from the distributor after converting the frequency thereof into a second intermediate frequency signal; a signal combiner configured to combine the signals provided from the first and second frequency converters; and a third E/O converter configured to convert the signals provided from the signal combiner through the optical fiber.

In related art, Lehman et al. disclose a digital communication network. A remote node (read as, optical network unit) within the network comprises; a feeder interface 501; a controller 502; and a distributor interface 500. The feeder interface, 501, contains a plurality of optical-electrical converters, for converting wideband and narrowband optical signal received from local central node. The distributor interface, 500, contains a plurality of electrical-optical converters and a plurality of optical-electrical converters; E-O converters (read as, first E/O converter) are for converting wideband and narrowband signals received from controller 502, O-E converters

(read as, first, second and third O/E converters) are for converting upstream signals (figure 9; column 18 lines 4-51; column 19 lines 45-50; and column 20 lines 14-40).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Lehman et al. with Combs et al. as modified by Ahmed et al. Since communications using optical fiber allow for higher bandwidth than conventional coax-cable; optical-electrical and electrical-optical conversion unit is necessary for the optical communication system.

Combs et al. as modified by Ahmed et al. and further modified by Lehman et al. disclose the invention as described above; except for, a first frequency converter configured to outputs the signal provided from the controller after converting the frequency thereof into a first intermediate frequency signal; a second frequency converter configured to output the signals inputted from the distributor after converting the frequency thereof into a second intermediate frequency signal; a signal combiner configured to combine the signals provided from the first and second frequency converters.

In related art, Vohra et al. disclose a multi-format optical signal transport of DWDM cable TV networks. The optical transport apparatus, 100, (read as optical network unit) comprises a plurality of RF up-conversion mechanism, 150, 155 and 160; and an RF combiner mechanism, 165. Each of the RF conversion unit performs frequency conversion of video, voice and internet data separately. The converted signals are then combined together with RF combiner, 165, before optically transmit (figure 1l; page 3 paragraphs 0036 and 0037).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Vohra et al. with Combs et al. as modified by Ahmed et al.

and further modified by Lehman et al. Up-converting the frequency before transmission allow for more efficient transmission through the optical medium.

6. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)** in view of **Lehman et al. (US Patent # 4,763,317).**

Consider **claim 9 and as applied to claim 1 above**, Combs et al. disclose the invention as described above; except for wherein each of the setup boxes comprises: a signal separator configured to separate the signals received over the optical fiber into broadcast signals and communication signals; and a hub configured to output the communication signals provided from one of a VOD player, a computer and an HDTV to a corresponding subscriber terminal, the hub further configured to receive communication signals including a subscriber control signal for changing broadcast channels from the subscriber terminal.

In related art, Lehman et al. disclose a digital communication network. On the subscriber side; there is a network interface equipment 104, subscriber interface equipment 400 and subscriber communication equipment 460 (combination of the three equipments 104, 400 and 460 form the setup box). Network interface equipment 104, receive the WDM signal and demultiplex the signal into separate channels; then convert the optical channels into electrical channels using a plurality of optical-electrical converters; also it has an electrical-optical converter for converting upstream signals from subscriber back to local central node. The subscriber interface equipment 400 (read as, hub) perform necessary conversion and/or demodulating before outputting the signal to a computer or a television set; it can also receive upstream signals from subscribers (figure 8; column 15 lines 35-54; column 15 lines 60-65; column 16 lines 9-19; and column 16 lines 36-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Lehman et al. with Combs et al. Since the communication system today uses an all optical transmission rather than coax-cable. Then it is necessary that the subscriber need an optical converter; so that the optical signal can be convert into electrical signal. Optical fiber communication allow for greater bandwidth usage, thus increasing speed in communication.

7. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)** in view of **Lehman et al. (US Patent # 4,763,317)** and further in view of **Vohra et al. (US PGPub 2003/0152386)**.

Consider **claim 10 and as applied to claim 9 above**, Combs et al. disclose the invention as described above; except for, wherein each of the setup boxes further comprises: a fourth O/E converter configured to convert the signals provided from the optical fiber; a first and second frequency converter configured to down-convert the broadcast signals and the communication signals from an intermediate frequency to a base-band frequency; and a fourth E/O converter configured to E/O convert and transmit the communication signals through the optical fiber.

In related art, Lehman et al. disclose a digital communication network. On the subscriber side; there is a network interface equipment 104, subscriber interface equipment 400 and subscriber communication equipment 460 (combination of the three equipments 104, 400 and 460 form the setup box). Network interface equipment 104, receive the WDM signal and demultiplex the signal into separate channels; then convert the optical channels into electrical channels using a plurality of optical-electrical (read as, O/E converter) converters; also it has an electrical-optical (read as, E/O converter) converter for converting upstream signals from

subscriber back to local central node. The subscriber interface equipment 400 (read as, hub) perform necessary conversion and/or demodulating before outputting the signal to a computer or a television set; it can also receive upstream signals from subscribers (figure 8; column 15 lines 35-54; column 15 lines 60-65; column 16 lines 9-19; and column 16 lines 36-55).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Lehman et al. with Combs et al. Since communications using optical fiber allow for higher bandwidth than conventional coax-cable; optical-electrical and electrical-optical conversion unit is necessary for the optical communication system.

Combs et al. as modified by Lehman et al. disclose the invention as described above; except for, a first and second frequency converter for down-converting the broadcast signals and the communication signals from an intermediate frequency to a base-band frequency.

In related art, Vohra et al. disclose a multi-format optical signal transport of DWDM cable TV networks. The multi-format optical signal receiving device, 1030a, comprises a plurality RF down-converter mechanism 1130, 1140, and 1150. Each RF down-converter mechanism converts the intermediate frequency of the voice, video, and internet to the base-band frequency (figure 11; page 5 paragraphs 0063 and 0064).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to incorporate the teaching Vohra et al. with Combs et al. as modified by Lehman et al. Up-converting the frequency before transmission allow for more efficient transmission through the optical medium.

8. **Claim 12** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Combs et al. (US Patent # 6,751,417)**, in view of **Ahmed et al. (US Patent # 6,519,773)**.

Consider **claim 12 and as applied to claim 1 above**, Combs et al. as modified by Ahmed et al. further disclose, wherein the optical line termination is directly coupled to signal sources (read as, the head-end unit 106 have receiver for receiving signal directly from satellite 102 and video feed 104; figure 1b).

### *Allowable Subject Matter*

9. **Claims 4, 6, and 11** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### *Response to Arguments*

10. Applicant's arguments, see page 9 paragraphs 4 and 5, filed 11/3/2006, with respect to claim 7 have been fully considered and are persuasive. The rejection of claim 7 under U.S.C. 112, second paragraph, has been withdrawn.

11. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

New ground of rejection for claim 1 was necessitated by applicant's amendments. In the prior Office Action, claim 1 was rejected because it is anticipated by Combs et al.; while the same reference is use for new ground of rejection for claim 1 under U.S.C. 103(a); the reason is, due to the amendments of claim 1, the interpretation of the clause "an optical line termination for wavelength-division multiplexing and transmitting the digital broadcast signals and the communication signals" was changed, applicant's amendment of the clause above limits the interpretation to "an optical line termination configured to wavelength-division multiplex the

time-division multiplexed digital broadcast signals and communication signals, and configured to transmit the wavelength-division multiplexed signals". The unrevised clause can be read as, the optical line terminal is capable of wavelength-division multiplexing and transmitting a digital broadcast signal and a communication signal, but did not have to multiplex and transmit them together into one signal; while the revised clause pointed out that the digital broadcast signal and the communication signal are wavelength-division multiplexed and transmit together in one signal.

***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any response to this Office Action should be **faxed to** (571) 273-8300 **or mailed to**:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

14. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Thi Le whose telephone number is (571) 270-1104. The Examiner can normally be reached on Monday-Friday from 7:30am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Rafael Perez-Gutierrez can be reached on (571) 272-7915. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

*Thi Le*

KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER